

The Guillemot *Uria aalge* population of the Faeroes 1972

By Jan Dyck and Hans Meltofte

(Med et dansk resumé: Ynglebestanden af Lomvie *Uria aalge* på Færøerne, 1972)

INTRODUCTION

The Faeroes, situated between Shetland and Iceland, are supposed to hold one of the biggest concentrations of breeding Guillemots *Uria aalge* in the north-eastern Atlantic Ocean (Tuck 1960). For some years the breeding population appears to have been declining and investigations are being carried out in order to find out the size and causes of a possible decrease. The present paper describes a census of the entire breeding population carried out in 1972. A fuller report on the census with maps of all colonies has been published in Danish (Dyck & Meltofte 1973).

Papers dealing with more casual observations (Meltofte 1973) and a census of the only Faeroese Gannet *Sula bassana* colony (Olsen & Permin 1974) made in connection with the present census have been published.

METHODS

The census was carried out by Faeroese and Danish ornithologists in the period 7 June-3 July 1972. All colonies were counted from boat using binoculars 10 x 50. Groups of 50 or 100 birds were used as counting units. Usually each part of a colony was counted independently by several observers, the average taken afterwards. Parts of some colonies (Suðuroy S & N, Skúvoy and Mykines W) were also counted from land. Some counts were repeated by two groups of observers to obtain an estimate of the reliability of the figures.

All colonies were photographed from a boat and most from a helicopter as well. A set of the photographs has been deposited at the office of Dansk Ornithologisk Forening in Copenhagen, and another one at The Fisheries Laboratory in Tórshavn.

An accurate census (counting every bird) was made of the cliff Høvdin on northwestern Skúvoy at the start of the census. Some of the ledges were counted a number of times throughout the census period in order to study the variation in numbers of birds present on the ledges. On some of these ledges the number of eggs was also counted when the cliff was visited by fowlers on 9 June. This made it possible to obtain an estimate of the ratio breeding pairs: birds present.

ACKNOWLEDGEMENTS

Andrias Reinert, The Fisheries Laboratory, Tórshavn, is directing the Faeroese Guillemot investigations, supported financially by the Faeroese Government. We want to thank him for taking the initiative over this census and for helping us in many ways. The census was carried out in collaboration with Dansk ornithologisk Forening and The Institute of Comparative Anatomy, University of Copenhagen. We thank both for help in numerous ways. Also our colleagues during the field-work: S. Bødker, E. Mortensen, B. Olsen and M. Permin. We are grateful for a grant from »Dansk-Færøsk Kulturfond«.

Many other people and organizations, too numerous to mention individually, helped us before, during and after the counts; we are grateful to them all. Dr. W.R.P. Bourne, Dr. A. Nørrevang and stud. scient. B. Olsen kindly criticized the manuscript and corrected the language.

RESULTS

The colonies and their size

Fig. 1 shows the positions of the Guillemot colonies in the Faeroes in 1972 and Fig. 2 and Table 1 the sizes of the colonies. A total of 590.000 birds were counted.

The colonies are mainly found on western and northern coasts (Fig. 1). The largest colonies are those found on the southern islands (Fig. 2, Table 1).

The cliff Høvdin on Skúvoy. Photo: M. Permin

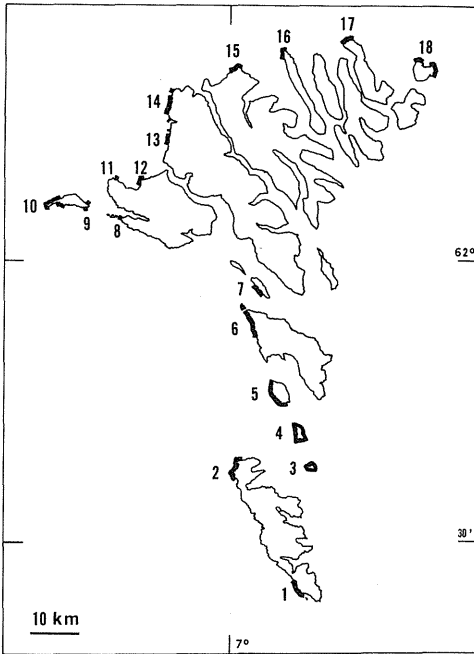


Fig. 1. Distribution of Guillemot colonies in the Faeroes, 1972. Numbers correspond to Table 1. *De færøske lomviekoloniers udstrækning, 1972. Numrene svarer til tabel 1.*

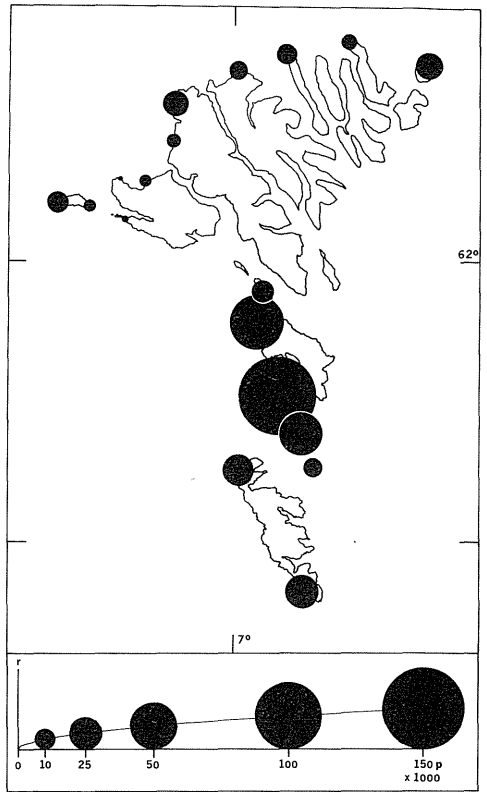


Fig. 2. Sizes of Guillemot colonies in the Faeroes, 1972.

De færøske lomviekoloniers størrelse, 1972.

Table 1. Sizes of the Faeroese Guillemot colonies, 1972. The numbers of pairs have been arrived at by multiplying numbers of birds by 2/3 (cf. text). *Størrelsen af de færøske Lomviekolonier, 1972. Antal par er fremkommet ved at gange antal fugle med 2/3.*

Colony Koloni	Dates of counting	Number of Guillemots	Number of pairs	
No. Nr.	Name Navn	Tælledato	Antal fugle	Antal par
1	Suduroy S	17-19 June	37,745	25,000
2	Suduroy N	19 June	36,200	24,000
3	Lífla Dímun	15 June	13,220	8,800
4	Skóra Dímun	15 June	68,050	46,000
5	Skúvoy	7-11 June	213,800	142,000
6	Sandoy	21 June	101,710	68,000
7	Høstur	21 June	17,290	12,000
8	Vágar SW	1 July	360	240
9	Mykines E	3 July	3,870	2,400
10	Mykines W	1-3 July	10,830	7,200
11	Vágar NW	28 June	184	120
12	Vágar N	19 June	3,680	2,500
13	Streymoy S	21+28 June	6,414	4,300
14	Streymoy N	23 June	20,800	14,000
15	Eysturoy	23 June	10,520	7,000
16	Kalsøy	22 June	14,150	9,400
17	Vidoy	22 June	5,980	4,000
18	Fugloy	22 June	22,730	15,000
Totals <u>Ialt</u>			590,000	390,000

The coastal cliffs on which the Guillemots breed are of basalt. Large ledges are found where beds of tuff have been eroded. The depth of these ledges goes up to 10 m in some places (Skúvoy, St. Dímun) but is mostly much less (Fig. 3). Many Guillemots also breed on smaller ledges formed where the softer parts of the basalts have been eroded away (Fig. 4). A special feature is the presence, especially on some promontories, of a large number of smaller caves, which measure up to a few metres in either direction. Such caves often hold large numbers of birds (St. Dímun, Skúvoy, Sandoy, Streymoy N, Fig. 5). Nørrevang (1960) has given a description of the colonies on Mykines.

In a few colonies (Streymoy S, Eysturoy, Viðoy) stacks hold a large proportion of the breeding population, but in most colonies it is only a minor proportion. The colonies seldom extend to the tops of the stacks. (Suduroy S, Streymoy N).

The birds are not evenly distributed along the coasts of the colonies. Fig. 6 shows the

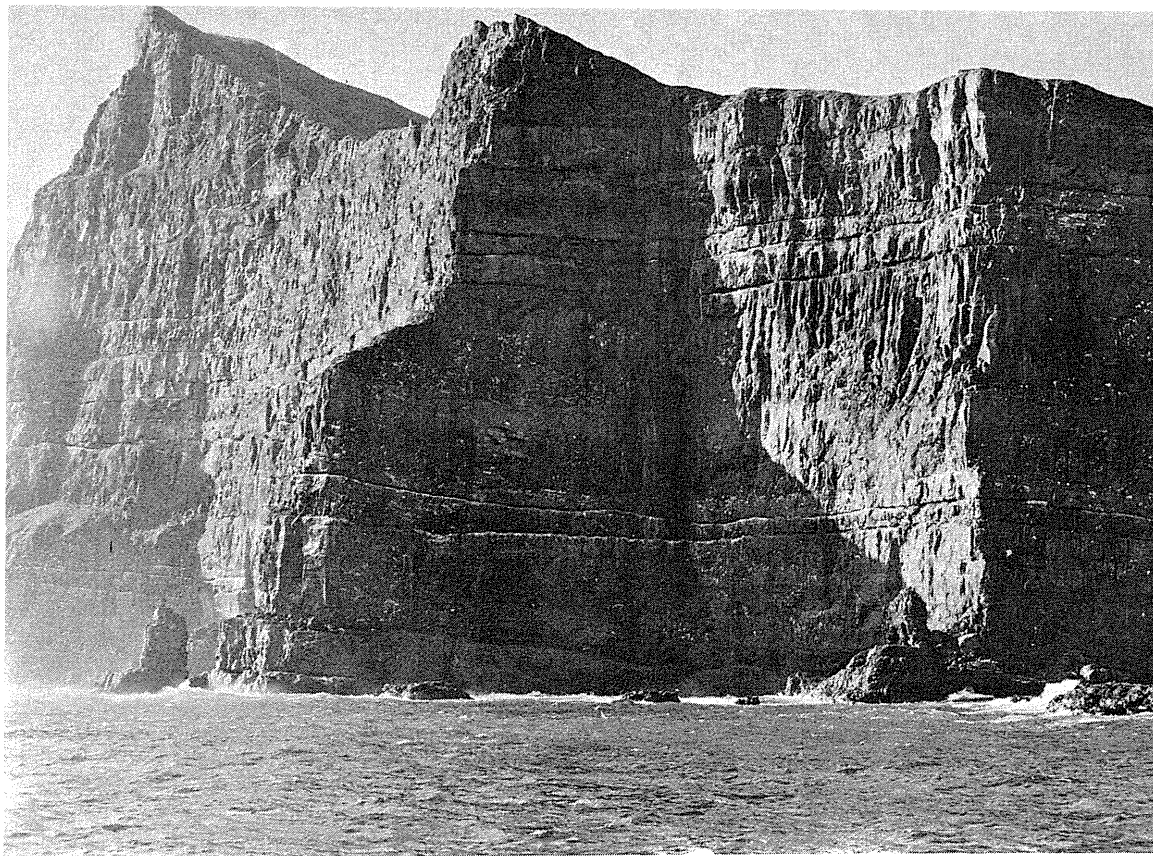


Fig. 3. Guillemots breeding on ledges formed where beds of tuff have been eroded (Suðeroy S, colony no. 1). Photo: HM.

Lomvier ynglende på hylder svarende til tuflag i basalten (Suðeroy S), koloni nr. 1).

densities along the coasts of Skúvoy, where the highest densities are found. In general the biggest colonies show the highest numbers of birds per 100 m coastline. The density is normally less than 1,000 birds per 100 m of coast over the colonies as a whole (see Dyck & Meltofte (1973) for maps showing densities).

The birds breed from about 5 to 150 (250) m above sealevel.

Variation in attendance

Table 2 gives the results of repeated counts of some ledges on Høvdin (Skúvoy). There are counts from the beginning as well as from the

latter part of the survey period. As the figures differ only slightly this is taken to indicate that the numbers present on the ledges during the survey period were fairly constant, so that the size of the colonies may be compared although they were counted on different dates. The figures indicate that variations throughout the day may be as large as day-to-day variations. The lowest figures were obtained early in the day (Table 2). All counts were carried out after 09.30 hours.

Ledge no.	7 June 14 hrs	8 June 10 hrs	9 June 10 hrs	Eggs taken 9 June Æg taget	Time of counting					
					10 June 11 hrs	13 June 17 hrs	13 June 18 hrs	28 June 18 hrs	28 June 20 hrs	29 June 09 hrs
1	43			yes	55		41	43	44	37
2	33			?		26		33	33	32
3	21			no	22	25	22	23	22	20
4	53		47	no	52	55	56	60	58	48
5	37	50	38	no	44	41	42	45	36	36
6	23			?		19		21	20	16
7	20		21	yes	21	24	21	23	22	21
8	58		59	yes	70	67	56	64	60	57
9	33			?		38		39	37	31
10	33	34	32	?			35	34	35	27
11	33			?	49		34	47	43	40
12	14			party		14		15	14	11
	(1.00)	0.98	0.98		1.18	1.08	1.03	1.12	1.06	0.94

Table 2. Repeated counts of some of the ledges at the cliff Høvdin. Skúvoy (colony no. 5). Figures in the lower line give birds present relative to 7 June. *Gentagne tællinger på nogle hylder på fjeldet Høvdin, Skúvoy (koloni nr. 5). Tallene i nederste linjer giver antal fugle tilstede, relativt til 7. juni.*

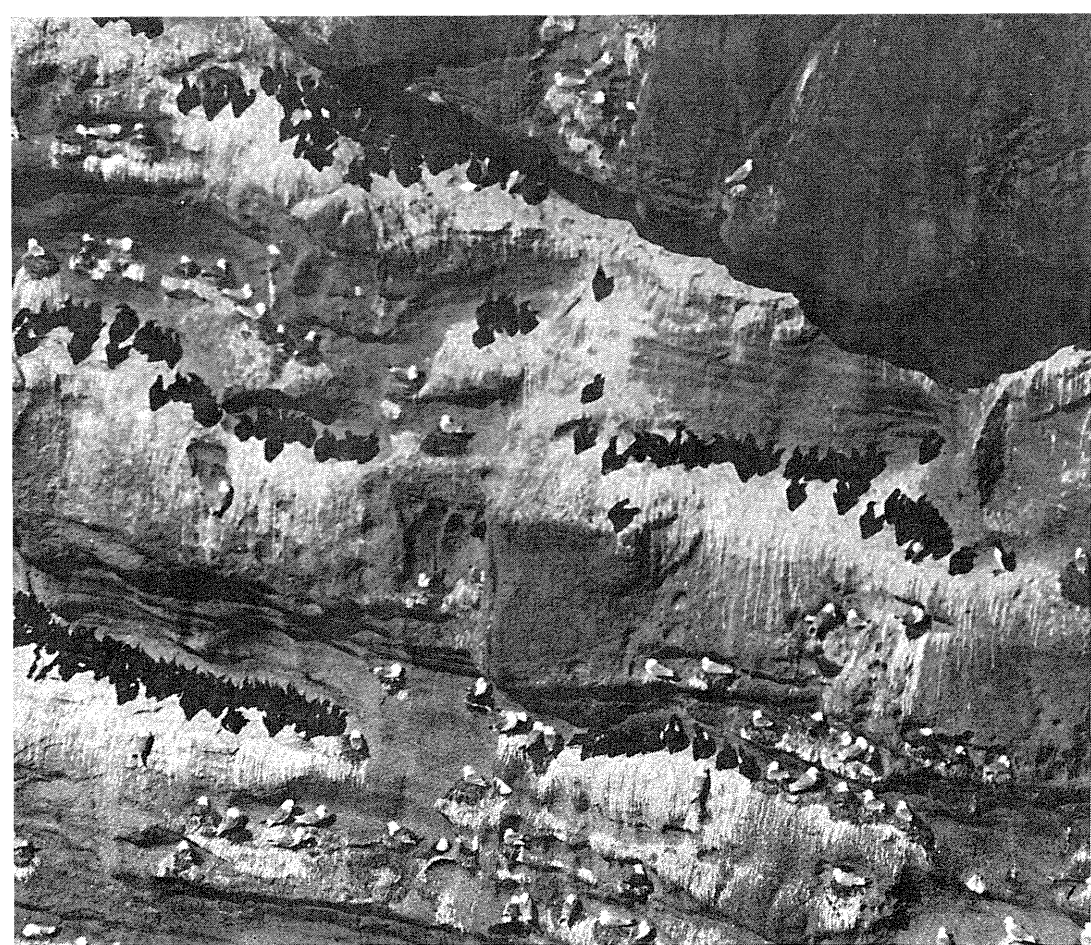


Fig. 4. Guillemots and Kittiwakes *Rissa tridactyla* breeding on small ledges formed where the softer parts of the basalt have been eroded away (Høvdin, Skúvoy, colony no. 5). Photo: HM.

Lomvler og Rider Rissa tridactyla ynglende på små hylder dannet, hvor de blødere dele af basalten er eroderet væk (Høvdin, Skúvoy, koloni nr. 5).

The ratio breeding pairs to birds present

On 9 June the cliff Høvdin (Skúvoy) was visited by local fowlers. In the traditional Faeroese manner they descended the cliff with ropes and collected a large proportion of the Guillemot eggs, 3,100 in all. With a telescope we were able to count the eggs on the ledges as the birds left (which usually did not happen until the fowlers were only a few meters away). Since a detailed census of the birds present on this cliff had been carried out on 7 June it became possible to compare the numbers of birds present and numbers of eggs directly (Table 3).

The ratio eggs present to birds present tends to be larger on the smaller ledges ($.02 < p < .05$, Spearman rank correlation coefficient, two-sided, Siegel 1956). The overall percentage is 51.1. Eight of the collected eggs were inspected. Two had reached only the primitive streak stage, in one the embryo was 0.5 cm long and in the last

five the embryos were 1-3 cm long. From a comparison with chicken embryos we suppose that an embryo length of 1 cm corresponds to 3-5 days of incubation, while 3 cm embryo length corresponds to 8-10 days of incubation.

DISCUSSION

Accuracy

A number of factors have to be considered: The observers differed in their estimates. Repeated countings indicate that this error may have been as high as 10 (20)% (Dyck & Meltøfte 1973, Table 5). It was impossible to see the whole of all the ledges. As in these cases we tried to estimate the number of birds from the apparent width of the ledge and their density, the figures may err on the high as well as on the low side. We were told that in a few places on Skúvoy the ledges are very deep (≥ 5 m) and not much higher than a standing

Table 3. Birds present on 7 June and eggs counted on 9 June (between 1030 and 1830 hrs.) on ledges of the cliff Høvdin (Skúvoy). Asterisks mark birds counted on 9 June instead shortly before the egg-collecting. Counts from ledges from the upper part of the cliff head the list and counts from the lower part end it.

Fugle til stede d. 7. juni og æg talt d. 9. juni (mellem kl. 1030 og 1830) på hylder på fjeldet Høvdin (Skúvoy). En stjerne markerer, at fuglene i stedet for d. 7. juni taltes d. 9. juni umiddelbart før æg-samlingen. Hylde fra klippens øverste del er opført først i tabellen, hylde fra den nederste del til sidst i tabellen.

Birds Fugle	Eggs Æg	Birds Fugle	Eggs Æg	Birds Fugle	Eggs Æg
17	12	6	6	21	13
39	20	29*	16	8	≥3
38*	23	11*	7	6	7
98*	56	7*	6	21	18
38*	22	24*	13	23	≥9
31*	14	12*	9	43	18
18*	5	95	44	23	8
35*	14	153	68	20	6
52	≥35	39	16	64	46
44	≥23	17	12	8	4
47	≥28	163	64	20	14
10	2	72	42	58	22
11	7	71	35	33	21
5	3	39	17	65	27
19	8	32	12	18	10
Total				1,693	865

Guillemot and hold huge numbers of birds. We have not been able to include such concentrations, but consider it unlikely that they are so numerous as to affect the total figures grossly.

Weather conditions were in general favourable for counting from the boat. Rough sea was a handicap when counting Vágar SW. We had to count the colonies on Suðuroy S and Streymoy N from a rather large boat which was unable to approach all cliffs sufficiently close. Some colonies were counted partly from land and then the remaining parts were counted from the sea. In some cases it proved difficult to determine from the sea the boundaries of the parts, which had already been counted from land, exactly.

Table 2 indicates that the number of birds present may vary by approximately $\pm 10\%$ throughout the day and from day to day. Other observers also report comparatively little variation in numbers present. The daily maximum number counted by Tschanz (1959) on a single ledge with 13 pairs varied between 11 and 20 birds with an average of 18 birds during a period corresponding to the survey period in the present investigation. On 5/6 of the days, however, the number varied only between 16 and 20 birds. Brooke (1973) reports a 10% variation throughout an entire day in an Irish colony. Greenwood (cited by Cramp *et al.* 1974) finds a variation similar to ours. (Variation in this section has been taken

to mean the difference between the average and the highest or lowest number).

We estimate that the sizes of the colonies have been determined with an accuracy of $\pm 30\%$.

The ratio breeding pairs to birds present

An important factor when determining colony sizes is the ratio breeding pairs to birds present. We found (p. 58) that the ratio eggs present to birds present was 51.1% on 9 June. This ratio is not, however, equal to the ratio breeding pairs to birds present, partly because not all pairs had laid their eggs, and partly because some pairs had probably already lost their first egg, when the census was performed. We have put the ratio breeding pairs to birds present to 67% = 2/3, a value we reached in the following way:

From the development of some eggs collected on 9 June (see above) we estimated that roughly one fifth of the eggs had not been laid yet. This is in agreement with the statements of the fowlers. Nørrevang (1958) found that in 1957 egg-laying on Mykines occurred between 25 May and 5 June, with the exception of a single ledge inhabited by first-time breeders where egg-laying occurred between 8 June and 15 June. Losses are due to eggs falling off the ledges (about 10% were lost when the ledges were visited by fowlers) and to predation by *Larus argentatus*, *L. marinus* and *Stercorarius skua*. Tuck (1960) has given figures for the rate at which eggs of Brünnich's Guillemot *Uria lomvia* are lost: At a time when 80 eggs (of 100) have been laid, 15 eggs have already been lost. This means that the proportion between eggs actually present and the maximum number if all pairs had their eggs, becomes $\frac{80 - 15}{100} = 0.65$. This

would alter the proportion breeding pairs to birds present on Høvdin to 51.1:0.65 = 75% (breeding pair defined as a pair holding a territory and laying one or several eggs). As, however, the Guillemot breeds on wider ledges than does the Brünnich's Guillemot (Williams 1974) we consider it likely that its loss of eggs is considerably smaller and accordingly use 2:3 = 67% as our best estimate for the ratio breeding pairs to birds present. This ratio has been used for the estimation of the sizes of all Faeroese colonies.

Other workers have used different values for this ratio. Joensen (1963) used the ratio 1:1 = 100% from the observation that the number of eggs taken by fowlers on a certain

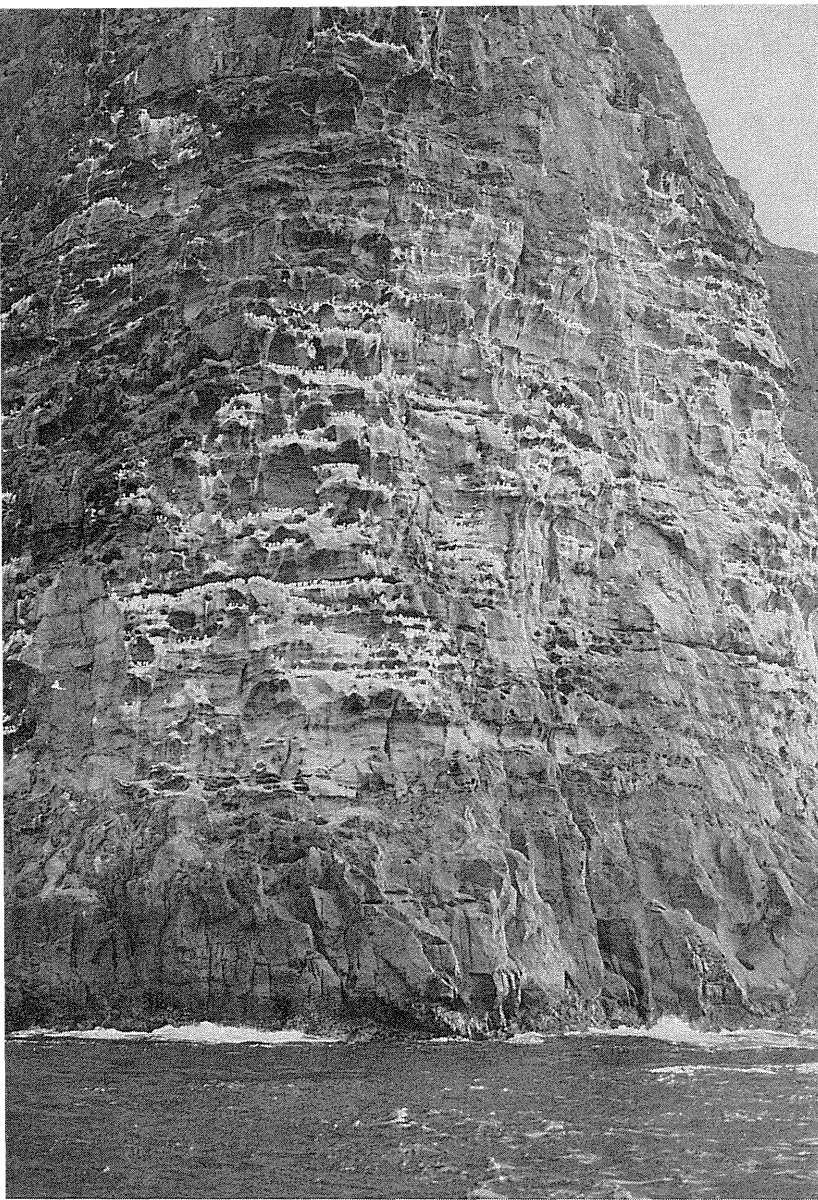


Fig. 5. Part of the colony on Skúvoy (no. 5) showing Guillemots breeding in numerous caves of varying size, as well as on long ledges. Photo: B. Olsen.

Del af kolonien på Skúvoy (nr. 5) visende Lomvier ynglende i huler af varierende størrelse, foruden på lange hylder.-

cliff on Skúvoy corresponded to the number of birds counted. Southern *et al.* (1965) from more accurate observations suggested use of the same proportion; a suggestion which appears to have been followed in the census of the population of Britain and Ireland (Cramp *et al.* 1974). Brun (1969) made new estimates of the number of birds present several times a day. In the Hjelmsøy colony (northern Norway) he found the proportion 54% on 22 June, apparently disregarding that some pairs might have lost their eggs. It thus appears that the ratio used in this census lies between those used in the British and Norwegian censuses. Clearly, there is a need for accurate data on this ratio in regard to variation in such factors

as time of day, stage of the breeding cycle, and the geographical position of colony, etc.

Position of the colonies

Ferdinand (1947) has published a map of the Faeroese Guillemot colonies which corresponds very well with our findings (Fig. 1). Minor differences in the exact positions of the colonies are noted on some islands, however, in particular on Hestur, Mykines and Vágar. Since the earlier map is based to a large extent on information from local people the differences between the two probably reflect small errors on the earlier map rather than a shift of the colonies.

Joensen (1966) mentions small colonies on

Svinoy (the southern coast, maximum a few hundred pairs - pers.comm.). We saw none as we sailed along the eastern and southern coast on 22 June.

The basaltic formations of the Faeroes generally slope towards the southeast, thus favouring the formation of steep cliffs on north- and west-facing coasts. This is reflected in the distribution of the colonies, but does not explain it entirely, as suitable steep cliffs are found in many more places. It is obvious that the colonies are situated at places where strong turbulent tidal currents form, *i.e.* around the ends of the islands and between the southern ones, where particularly large amounts of food are brought to the surface (Tuck 1960, Cramp *et al.* 1974).

The total number

There are no reliable past figures for the entire Faeroese population. Tuck (1960) supposes it to be several million pairs. Joensen (1966), estimating the population of Skúvoy to be half a million pairs (Joensen 1963), suggests that the entire population is between one and three million pairs.

Our result, *c.* 400.000 pairs, is far below these guesses. However, even with this size the Faeroese population is considerably larger than the entire Norwegian population (*c.* 140.000 pairs, Brun 1969) and not much smaller than the entire population of the British Isles (577.000 pairs, Cramp *et al.*, 1974). However, the numbers of actually counted individuals are very much the same in the British and Faeroese censuses. Williams (1971) assessed the population of *Uria sp.* on Bear Island at about 310.000 birds in 1970. The colonies in the Baltic Sea, France, Spain and Portugal all are rather small (Tuck 1960).

Other places in the North Atlantic Ocean where large concentrations of common Guillemots breed, are Iceland, the Murman coast of Russia and eastern Canada (Tuck 1960). Recent estimates of the sizes of these colonies have not been published to our knowledge. It is desirable, that they should be made available so that the most important strongholds of the Common Guillemot in the North Atlantic Ocean may be known.

Changes in population size

Only the colonies on Mykines and Skúvoy have been counted previously. Nørrevang (1960) estimated the total population of Mykines as not less than 15.000 pairs, while we found 9.650 pairs. However, a comparison of the actual numbers of birds counted reveals

no great difference (14.750 and 14.500 birds, respectively). Actually there may have been a slight increase, as in 1972 Nørrevang (pers. comm.) observed Guillemots breeding on some ledges in the colony Mykines W, where none had been present in 1957. In any case, there are no indications of a strong alteration in the population size of Mykines during these 15 years.

In 1961 Joensen (1963) estimated the total population of Skúvoy at 500.000 birds, corresponding to 500.000 pairs, while we counted only 214.000 birds, corresponding to 142.000 pairs. This would indicate a serious decline in this, the largest, Faeroese colony. However, we have had access to Joensen's field notes, and it follows from these that the actual discrepancies between his and our figures are much less important. Joensen was unable to count the birds from the sea, due to bad weather conditions in 1961, but could obtain only a rough estimate of their distribution along the coast. A comparison of the numbers counted from land on certain parts of the coast gives the following figures: 39,100 birds in 1961, 30,500 birds in 1972, corresponding to a decline of 22% (Dyck & Meltote, 1973, Table 8). Furthermore the number of eggs taken by fowlers on the cliff

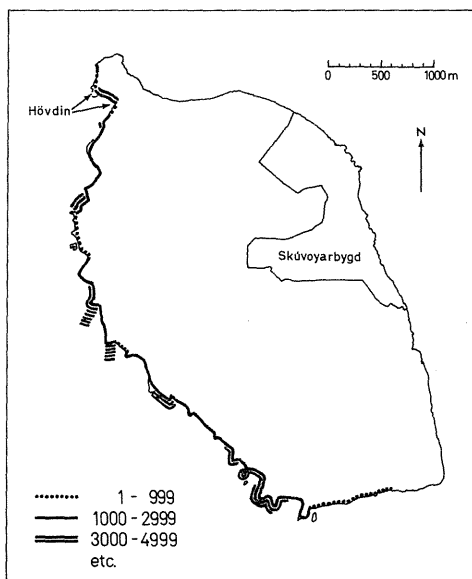


Fig. 6. Distribution of Guillemots along the coast of Skúvoy (colony no. 5). Number of lines correspond to birds per 100 m coastline.

Fordeling af Lomvier langs kysten af Skúvoy (koloni nr. 5). Antal linjer angiver fugle pr. 100 m kystlinje.

Høvdin on northwestern Skúvoy in the same two years show a similar decline (4,000 and 3,100 eggs respectively, also down 22%). Jønsen probably obtained a much higher figure than we did, because he used similar densities for all parts of the coast to those obtained for those which could be observed from land. Our counts clearly reveal that the latter parts in general have much higher densities (Fig. 6).

The inhabitants of Skúvoy were of the opinion that the population had decreased during the last 15 years, and that the decrease was most severe in the late nineteen-fifties.

It is impossible from these figures to give a reliable estimate of the possible overall changes in the Faeroese Guillemot population during the last 10-15 years, but since Skúvoy lies in the middle of the largest Faeroese colonies, and since the pressures on the population such as snaring and shooting may be supposed to have been larger in these colonies than in the isolated colony on Mykines, we guess that the Faeroese Guillemot population has decreased by about 20% during the last decade. But we have to emphasize that this value is a guess rather than an estimate, since 22% is within the counting error of 30% in the present census and possibly also within the yearly fluctuations.

The census of Høvdin (Skúvoy) has been repeated in 1973 and 1974. The figures obtained (1972: 9,000, 1973: 9,700 and 1974: 9,500 birds, Bergur Olsen, pers. comm.) do not suggest a continuing decline.

Finally, it should be pointed out, that even if the number of birds present remains the same, this does not necessarily mean a stable population, since immigration from or emigration to populations outside the Faeroes cannot be ruled out (cf. the rapid increase on Funk Island, commented upon by Southern *et al.* (1965), p. 663-64).

Causes to a possible decline

If we accept the guess that the Faeroese Guillemot population has declined during the last one to two decades, which would be a situation similar to the one found for the populations of southern Norway (Brun 1971) and southern England and Wales (Cramp *et al.* 1974), there are a number of possible causes. Since these presently are being investigated by Andrias Reinert, they will only be summarized briefly.

The Guillemot, which is present in the Faeroese waters from February to August, is not protected by law against shooting, except within three nautical miles of the colonies

(until 1974 it was two nautical miles). Large, but unknown numbers are being shot every year.

Large numbers of mainly immature birds are being snared during the summer. The method was only introduced to the Faeroes around 1945.

The principal wintering grounds are unknown, but birds have been recovered from the Norwegian coast (shot and drowned in fish-nets) and British waters (oiled), so hunting, fishing activities and oil pollution may all be contributing mortality factors during winter. Brun (1971) considered these last three factors the most important causes to the decline of the population in southern Norway.

Concentrations of pollutants in the eggs are low (Dyck & Meltofte 1973, Table 12) compared to those reported from the Baltic Sea (Jensen *et al.* 1969) and no recent change of shell thickness has occurred (Dyck & Meltofte 1973, Table 14).

Egg-collecting by fowlers is probably of little importance. The largest number of eggs is taken on Skúvoy, where it is 10-20,000 eggs annually, and the number of breeding adults taken by fowlers in the colonies is probably too low nowadays to be of any importance for the population.

Summarizing, we suspect that shooting and snaring in the Faeroese waters in combination with increasing winter mortality are the principal factors causing a possible decline, although other factors related to climatic change or overfishing cannot be ruled out.

DANSK RESUME

Ynglebestanden af Lomvie *Uria aalge* på Færøerne, 1972

Den færøske bestand af Lomvier optaltes af et hold færøske og danske ornithologer i perioden 7. juni til 3. juli 1972. Alle kolonierne optaltes fra båd, enkelte tillige delvist fra land. Efter at fjeldet Høvdin på Skúvoy indledningsvist var blevet optalt fugl for fugl (9000 individer), optaltes resten af kolonierne ved hjælp af skønnede grupper på 50 eller 100 fugle (f. eks. 100, 200, 300 2600). For det meste taltes samme koloni (inddelt i mindre dele) af flere tællere samtidigt, ligesom kontroltællinger udførtes; dels for at påvise optællingsusikkerheden, dels for at påvise svingninger i antallet af fugle tilstede i kolonierne fra dag til dag og i løbet af dagen (Tabel 2). Alle kolonierne blev fotograferet fra båd og de fleste tillige fra he-

likopter. Fuglene kan ikke tælles på disse fotos, men koloniernes udstrækning fremgår tydeligt, og kan forhåbentligt sammenlignes med udstrækningerne efter en årrække.

Resultaterne af optællingerne fremgår af fig. 1 og 2 samt tabel 1. Et eksempel på fordelingen af fuglene i en koloni er vist på fig. 6. Forholdet mellem antallet af fugle tilstede i en koloni (her i æglægnings- og rugetiden) og det faktiske antal par angives højst forskelligt i litteraturen. Vi talte antallet af æg en dag lokale ægsamlere i tove var nede i en koloni, og ved at korrigerer resultatet herfra (2:1, tabel 3) for endnu ikke lagte æg og tabte æg, nåedes forholdet 3:2, d.v.s. at de 590.000 fugle skulle svare til 390.000 par. Vi vil anslå at den totale usikkerhed for optællingsresultaterne er $\pm 30\%$. Kolonierne er udpræget placeret hvor stejle kystfjelde dannes, d.v.s. fortrinsvis på vest- og nordvendte kyster, men der er tillige en kraftig tendens til at kolonierne findes hvor strømmen er særlig kraftig og turbulent, og således bringer større fødemængder op nær overfladen.

Baggrunden for denne optælling var en formodning om, at den færøske Lomviebestand var gået alvorligt tilbage i de sidste årtier. Ferdinand (1947) viser et kort over koloniernes daværende placering og udbredelse; herudfra kan der ikke påvises forskelle. Nørrevang (1960) optalte bestanden på Mykines til 14.750 individer i 1957, medens vi fandt 14.500, altså praktisk taget det samme. Joensen (1963) skønnede i 1961 bestanden på Skúvoy til 500.000 individer, men ved sammenligning af direkte optællingsresultater fra sammenfaldende dele af kolonien fandtes kun en mindre nedgang (fra 39.100 til 30.500 fugle, d.v.s. -22%). Den meget store forskel i det totale resultat må skyldes, at Joensen grundet hård sø ikke kunne tælle fra havet, og derefter gik ud fra tilnærmelsesvis den samme fugletæthed på hele kysten, som den der fra land kunne konstateres på de fremspringende fjeldpartier, hvilket langt fra er tilfældet (fig. 6).

De 22%'s nedgang kan ikke tillægges afgørende betydning, da de både er indenfor tælleusikkerheden og måske også indenfor hvad man kan forvente af årlige svingninger. Nedgangen skulle dog hovedsageligt have fundet sted i slutningen af halvtredserne, og kan skyldes for stor beskatning på Færøerne i form af skydninger og snarefangst (sidstnævnte indført omkring 1945) i forbindelse med øget dødelighed i vinterkvartererne ved Norge og de Britiske Øer (olie, skydning og drukning i fiskenet). Der påvist ingen fare-

truende koncentrationer af miljøgifte i æggene.

Det må fremhæves, at Lomvien er en art, der formerer sig meget langsomt (kun 1 æg pr. år), så hvis der på de 11 år fra 1961 til 1972 er sket en tilbagegang på ca. 20% for den færøske bestand som helhed, og denne tilbagegang i det væsentlige skyldes menneskebetingede faktorer, er der grund til uro, og det kan i så fald være rimeligt at overveje om ikke den jagtlige udnyttelse bør mindskes.

En mere detaljeret rapport om optællingerne, med detailkort over fordelingen i de enkelte kolonier, er tidligere blevet publiceret (Dyck & Meltøfte, 1973), og kan rekvireres gennem DOF-salg.

REFERENCES

- Brooke, M. de L., 1973: Birds of the Shiant Islands, Outer Hebrides. — *Bird Study* 20: 197-206.
- Brun, E., 1969: The breeding distribution and population of Guillemots (*Uria aalge*) in Norway. — *Sterna* 8: 209-224. (In Norwegian, English summary).
- , 1971: Population changes of some sea-birds in South Norway. — *Sterna* 10: 35-56. (In Norwegian, English summary).
- Cramp, S., W.R.P. Bourne and D. Saunders, 1974: The seabirds of Britain and Ireland. — London.
- Dyck, J. and H. Meltøfte, 1973: Lomvieoptællingen på Færøerne 1972. — Report issued by Dansk ornithologisk Forening (Copenhagen), The Fisheries Laboratory (Tórshavn) and Institute of Comparative anatomy (University of Copenhagen). 97 pp.
- Ferdinand, L., 1947: Studies of the bird-life in the Faeroes. — *Dansk orn. Foren. Tidsskr.* 41: 1-37. (In Danish, English summary).
- Jensen, S., A.G. Johnels, M. Olsson and G. Otterlind, 1969: DDT and PCB in marine animals from Swedish waters. — *Nature* 224: 247-250.
- Joensen, A.H., 1963: The breeding birds of Skúvoy, Faeroes, their distribution and numbers — *Dansk orn. Foren. Tidsskr.* 57: 1-18. (In Danish, English summary).
- , 1966: Fuglene på Færøerne. — København.
- Meltøfte, H., 1973: Observations in the Faeroes, 1972. — *Dansk orn. Foren. Tidsskr.* 67: 105-108. (In Danish, English summary).
- Nørrevang, A., 1958: On the breeding biology of the Guillemot (*Uria aalge* (Pont.)) — *Dansk orn. Foren. Tidsskr.* 52: 48-74.
- , 1960: Habitat selection of sea-birds in Mykines, Faeroes. — *Dansk orn. Foren. Tidsskr.* 54: 9-35. (In Danish, English summary).
- Olsen, B. and M. Permin, 1974: The population of Gannet *Sula bassana* on Mykinesholmur, 1972 — *Dansk orn. Foren. Tidsskr.* 68: 39-42. (In Danish, English summary).
- Siegel, S., 1956: Nonparametric statistics for the behavioral sciences. — New York & Tokyo.

- Southern, H.N., R. Carrick and W.G. Potter, 1965: The natural history of a population of Guillemots (*Uria aalge* Pont.)—*J. Anim. Ecol.* 34: 649-665.
- Tschanz, B., 1959: Zur Brutbiologie der Trottellumme (*Uria aalge aalge* Pont.)—*Behaviour* 14: 1-100.
- Tuck, L., 1960: The murrens — Canadian Wildlife Series 1. Ottawa.
- Williams, A.J., 1971: Ornithological observations on Bear Island 1970. — *Astarte* 4: 31-36.
- , 1974: Site preferences and interspecific competition among Guillemots *Uria aalge* (L.) and *Uria lomvia* (L.) on Bear Island. — *Ornis Scand.* 5: 113-121.

MS received 20th February 1975

Authors' addresses:
JD, Inst. f. sml. Anatomi
Universitetsparken 15
2100 Copenhagen Ø.

HM, Ericavej 32
2820 Gentofte

